## INDEX TO VOLUME XV.

SUBJECTS.	
Absorption, Selective, As a Function of Wave-Length. George E.	PAGE
Hale	227
ALGOL Stars, Early Observations of. Edward C. Pickering -	229
VARIABLE, New. E. C. Pickering	343
Ammonia, Influence of Atmosphere of, on Arc Spectra, Compared	
with that of Nitrogen and Hydrogen. Royal A. Porter	274
Anomalous Dispersion of Light, Origin of Double Lines in Spectrum	
of Chromosphere due to. W. H. Julius	28
ARC Spectra, Influence of Atmospheres of Nitrogen and Hydrogen	
on, Compared with that of Ammonia. Royal A. Porter -	274
ASTROPHYSICAL JOURNAL, Grant by Smithsonian Institution to -	297
BANDS in Bunsen Flame Spectrum of Sodium. Percival Lewis -	296
New Heads to Cyanogen. C. C. Hutchins	310
BINARIES, Spectroscopic: a Suggestion. J. Miller Barr	65
BINARY β Cephei, Spectroscopic. Edwin B. Frost	340
Improved Method of Calculating Orbit of Spectroscopic. Henry	
Norris Russell	252
BRIGHT and Dark Lines, Remarks on the Article on Spectra Con-	
taining both. J. Scheiner	342
BRUCE Spectrograph of the Yerkes Observatory. Edwin B. Frost -	1
Some Results with. Walter S. Adams	214
BUNSEN Flame, Effect of Sodium on the Hydrocarbon Bands in the	
Spectrum of. Percival Lewis	122
Spectrum of Sodium, Bands in. Percival Lewis	296
β Cephei, Spectroscopic Binary. Edwin B. Frost	340
CHROMOSPHERE, Origin of Double Lines in Spectrum of. W. H.	
Julius	28
CONTRIBUTIONS to the Solar Theory. R. Emden	38
CORNU, Marie-Alfred	298
CORNU, Marie-Alfred. Joseph S. Ames	299
CORONA of 1901, Origin of Disturbed Region in. C. D. Perrine -	147
CYANOGEN Bands, New Heads to. C. C. Hutchins	310
DARK LINES, Remarks on the Article on Spectra Containing both	

Bright and. J. Scheiner - - - - 342

	PAGE
DISCREPANCY between Grating and Interference Measurements.	PAGE
Louis Bell	157
DISTURBED Region Observed in Corona of 1901, Origin of. C.D.	
Perrine · · · · · · · · · · · · · · · · · · ·	147
DOPPLER Effect and Reversal in Spark Spectra. John Fred Mohler -	125
DOUBLE Lines in Spectrum of the Chromosphere Due to Anomalous	
Dispersion of the Light from the Photosphere, Origin of. W.	
H. Julius	28
ECHELON Spectroscope. Observations on Resolving Power of Mich-	
elson. P. Zeeman	218
ECLIPSE Expedition from Massachusetts Institute of Technology,	
Photographic Work of. Harrison W. Smith	199
Spectra Obtained at Sumatra. W. J. Humphreys	313
EXPLOSION Hypothesis in Light of Recent Phenomena of Nova	
Persei. W. H. Pickering	68
FIELD, Separation of Corresponding Series Lines in Magnetic. C.	
Runge and F. Paschen	333
FLASH Spectrum, May 18, 1901. S. A. Mitchell	97
GRATING and Interference Measurements, Discrepancy between.	,,
Louis Bell	157
GRAVITATION and Light, Numerical Relation between. Victor Well-	- 31
mann · · · · · · · · · · · · · · · · · ·	282
HEAT Radiation, Pressure Due to. E. F. Nichols and G. F. Hull	62
HYDROCARBON Bands in the Spectrum of the Bunsen Flame, Effect	
of Sodium on. Percival Lewis	122
Hydrogen, Influence of Atmosphere of, on Arc Spectra Compared	
with that of Ammonia, Royal A. Porter	274
INTERFERENCE Measurements, Discrepancy between Grating and.	-/4
Louis Bell	157
IRON in Liquids and in Air at High Pressures, Note on Spark Spectrum	*3/
of. George E, Hale · · · · · · ·	132
Influence of Atmospheres of Nitrogen and Hydrogen on Arc	132
Spectrum of, Compared with Influence of Atmosphere of	
Ammonia. Royal A. Porter	274
Measures of Absolute Wave-Length in Spectrum of. C. Fabry	274
	, 261
LIGHT, Experimental Investigation of Pressure of. Peter Lebedew	60
and Heat Radiation, Pressure Due to. E.F. Nichols and G.F.	00
Hull	62
and Gravitation, Numerical Relation between. Victor Well-	02
	282
Mechanical Equivalent of Unit of. Knut Angström	
Mechanical Equivalent of Unit of. Knut Angstrom	223

INDEX TO SUBJECTS	359
MAGNESIUM, Influence of Atmospheres of Nitrogen and Hydrogen on	PAGE
Arc Spectrum of, Compared with Influence of Atmosphere of Ammonia. Royal A. Porter	
MAGNETIC Field, Radiation of Mercury in. C. Runge and F.	274
Paschen	235
Separation of Corresponding Series Lines in. C. Runge and F.	
Paschen	333
MASSACHUSETTS Institute of Technology, Photographic Work of Eclipse Expedition from. Harrison W. Smith	199
MEASUREMENTS, Discrepancy between Grating and Interference.	,,
Louis Bell	157
MEASURES of Absolute Wave-Lengths in Solar Spectrum and in	- 2,
Spectrum of Iron. C. Fabry and A. Perot	261
of Spectrograms, Determination of Cause of Discrepancy between.	
H. M. Reese	142
MECHANICAL Equivalent of the Unit of Light. Knut Angström -	223
MERCURY in Magnetic Field, Radiation of. C. Runge and F.	
Paschen	235
METALLIC Poles in Water, Spark Discharge from. Sir Norman	-33
Lockyer	190
MICHELSON Echelon Spectroscope, Observations on Resolving Power	
of. P. Zeeman	218
NEBULA About Nova Persei, Later Photographs of. G. W. Ritchey -	129
Radial Velocity of Orion. H. C. Vogel	302
NEBULÆ, Spectrographic Measures of Velocities of Gaseous. J.	5
Hartmann	287
NEBULOSITY about Nova Persei, Further Observations of Movements	
and Changes in. C. D. Perrine	136
NITROGEN, Influence of Atmosphere of, on Arc Spectra Compared	- 3
with that of Ammonia. Royal A. Porter	274
Nova Persei, Explosion Hypothesis in Light of Recent Phenomena of.	-7.4
W. H. Pickering · · · · · · ·	68
Later Photographs of the Nebula About. G. W. Ritchey -	129
Further Observations of Movements and Changes in Nebulosity	
about. C. D. Perrine	136
ORBIT of Spectroscopic Binary, Improved Method of Calculating.	- 3
Henry Norris Russell	252
ORION Nebula, Radial Velocity of. H. C. Vogel	302
Persei, Nova, Explosion Hypothesis in Light of Recent Phenomena of.	9
W. H. Pickering	68
Later Photographs of Nebula about. G. W. Ritchey	120

	PAGE
Further Observations of Movements and Changes in Nebulosity	
about. C. D. Perrine	136
PERSONAL Equation in Measuring Photographic Spectra. B. Hassel-	
berg	208
PHOTOGRAPHIC Work of Eclipse Expedition from the Massachusetts	
Institute of Technology. Harrison W. Smith	199
PHOTOSPHERE, Origin of Double Lines in Spectrum of Chromosphere	
due to Anomalous Dispersion of Light from. W. H. Julius	28
PHYSICAL Papers of H. A. Rowland. Joseph S. Ames	342
POTSDAM Spectrograph No. III, Electric Heating of. J. Hartmann	172
PRESSURE of Light, Experimental Investigation of. Peter Lebedew	60
Due to Light and Heat Radiation. E. F. Nichols and G. F. Hull	162
PRESSURES, High, Note on Spark Spectrum in Air at. George E.	
Hale	132
RADIATION of Mercury in Magnetic Field. C. Runge and F. Paschen	302
Pressure due to Light and Heat. E. F. Nichols and G. F. Hull	235
RESOLVING Power of Michelson Echelon Spectroscope, Some Observ-	02
ations on. P. Zeeman	218
REVERSAL in Spark Spectra, Doppler Effect and. John Fred Mohler	125
REVIEWS. See Table of Contents.	)
Rowland, H. A. Physical papers of. Joseph S. Ames -	342
SELECTIVE Absorption as a Function of Wave-Length. George E.	2 *
Hale	227
SERIES Lines in Magnetic Field, Separation of Corresponding. C.	
Runge and F. Paschen	333
SMITHSONIAN Institution, Grant by, to the ASTROPHYSICAL JOURNAL	297
SODIUM, Bands in Bunsen Flame Spectrum of. Percival Lewis -	296
Effect of, on Hydrocarbon Bands in Spectrum of Bunsen Flame.	
Percival Lewis	122
SOLAR Spectrum, Measures of Absolute Wave-Lengths in. C. Fabry	
and A. Perot	261
Theory, Contributions to. R. Emden	38
SPARK Discharge from Metallic Poles in Water. Sir Norman Lockyer	190
Spectra, Doppler Effect and Reversal in. John Fred Mohler -	125
Spectrum of Iron in Liquids and in Air at High Pressures, Note	
on. George E. Hale	132
SPECTRA, Arc, Influence of Atmospheres of Nitrogen and Hydrogen	
on, Compared with that of Ammonia. Royal A. Porter	274
Containing both Bright and Dark Lines, Remarks on the Article	216
on. J. Scheiner	342
Doppler Effect and Reversal in Spark. John Fred Mohler -	125

INDEX TO SUBJECTS	361
	FAGE
SPECTRA, Eclipse, Obtained at Sumatra. W. J. Humphreys -	313
Personal Equation in Measuring Photographic. B. Hasselberg Spectrograms, Cause of Discrepancy between Measures of. H. M.	208
Reese	142
SPECTROGRAPH No. III, Electric Heating of Potsdam. J. Hartmann	172
Bruce, of the Yerkes Observatory. Edwin B. Frost	1
Some Results with the. Walter S. Adams	214
SPECTROGRAPHIC Measures of Velocities of Gaseous Nebulae. J.	
Hartmann	287
SPECTROSCOPE, Observations on Resolving Power of Michelson Eche-	,
lon. P. Zeeman · · · · · · · ·	218
Spectroscopic Binaries: A Suggestion. J. Miller Barr	65
Binary, Improved Method of Calculating Orbit of. Henry Norris	
Russell	252
β Cephei. Edwin B. Frost	340
SPECTRUM of Bunsen Flame, Effect of Sodium on Hydrocarbon Bands	3.
in. Percival Lewis	122
Of Chromosphere, Origin of Double Lines in. W. H. Julius -	28
Flash, May 18, 1901. S. A. Mitchell	97
Of Iron, Measures of Absolute Wave-Lengths in. C. Fabry and	,,
A. Perot 73	. 261
Of Sodium, Bands in Bunsen Flame. Percival Lewis	296
Solar, Measures of Absolute Wave-Lengths in. C. Fabry and A.	
Perot 73	, 261
Spark, of Iron in Liquids and in Air at High Pressures. George	
E. Hale	132
STARS, Early Observations of Algol. Edward C. Pickering	229
SUMATRA, Eclipse Spectra Obtained at. W. J. Humphreys	313
TIN, Influence of Atmospheres of Nitrogen and Hydrogen on Arc	
Spectra of, Compared with Influences of Atmosphere of Am-	
monia. Royal A. Porter	274
UNIT of Light, Mechanical Equivalent of. Knut Ångström	223
VARIABLE, New Algol. E. C. Pickering	343
VELOCITIES of Gaseous Nebulae, Spectrographic Measures of. J.	
Hartmann	287
VELOCITY, Radial, of Orion Nebula. H. C. Vogel	302
WATER, Spark Discharge from Metallic Poles in. Sir Norman Lockyer	190
WAVE-LENGTH, Selective Absorption as a Function of. George E.	
Hale	227
WAVE-LENGTHS in Solar Spectrum and in Spectrum of Iron, Measures	
of Absolute. C. Fabry and A. Perot	73

WAVE-LENGTHS, in Solar Spectrum and in Spectrum of Iron, Meas-	PAGE
ures of Absolute. C. Fabry and A. Perot	261
YERKES Observatory, Bruce Spectrograph of. Edwin B. Frost -	1
ZINC, Influence of Atmospheres of Nitrogen and Hydrogen on Arc	
Spectrum of, Compared with Influence of Atmosphere of Am-	
monia. Royal A. Porter	274

For Reviews, See Table of Contents.

## INDEX TO VOLUME XV.

AUTHORS.	
	NGE
	14
	99
Physical Papers of H. A. Rowland 3	12
ÅNGSTRÖM, KNUT. The Mechanical Equivalent of the Unit of Light 2	23
BARR, J. MILLER. Spectroscopic Binaries: A Suggestion	65
BELL, Louis. On the Discrepancy between Grating and Interference	
Measurements 1	57
CREW, HENRY. Review of: Handbuch der Spectroscopie, H. Kayser 1	50
	38
FABRY, C., and A. PEROT. Measures of Absolute Wave-Lengths in	
the Solar Spectrum and in the Spectrum of Iron - 73, 20	61
FROST, EDWIN B. The Bruce Spectrograph of the Yerkes Observa-	
	1
	40
HALE, GEORGE E. Note on the Spark Spectrum of Iron in Liquids	
11 11 11 11 1	32
	27
Review of: Handbuch der Astronomischen Instrumentenkunde,	-,
Y D 1 1	47
HARTMANN, J. The Apparatus for the Electric Heating of the Pots-	47
	72
	87
HASSELBERG, B. Note on a Personal Equation in Measuring Photo-	0,
	08
HULL, G. F., and E. F. NICHOLS. Pressure Due to Light and Heat	00
	62
HUMPHREYS, W. J. Spectroscopic Results Obtained during the Solar	02
	1.2
	13
JULIUS, W. H. On the Origin of Double Lines in the Spectrum of the	10
Chromosphere due to Anomalous Dispersion of the Light from	
	00
	28
LEBEDEW, PETER. Experimental Investigation of the Pressure of	6-
Light	60

LEWIS, PERCIVAL. The Effect of Sodium on the Hydrocarbon Bands	FAGE
in the Spectrum of the Bunsen Flame	122
Bands in the Bunsen Flame Spectrum of Sodium	296
LOCKYER, SIR NORMAN. On the Spark Discharge from Metallic	
Poles in Water	190
MIDDLEKAUFF, GEORGE W. Review of: The Cause of the Structure	
of Spectra, William Sutherland	350
MITCHELL, S. A. The Flash Spectrum, May 18, 1901	97
MOHLER, JOHN FRED. The Doppler Effect and Reversal in Spark	
Spectra	125
NICHOLS, E. F., and G. F. HULL. Pressure due to Light and Heat	
Radiation	62
PASCHEN, F., and C. RUNGE. On the Radiation of Mercury in the	
Magnetic Field	235
Separation of Corresponding Series Lines in the Magnetic Field	333
PEROT, A., and C. FABRY. Measures of Absolute Wave-Lengths in	555
the Solar Spectrum and in the Spectrum of Iron 73	. 261
PERRINE, C. D. Further Observations of the Movements and	
Changes in the Nebulosity about Nova Persei	136
Origin of a Disturbed Region Observed in the Corona of 1901,	5
May 17–18	147
PICKERING, EDWARD C. Early Observations of Algol Stars -	229
New Algol Variable	343
PICKERING, W. H. The Explosion Hypothesis in the Light of Recent	5.5
Phenomena of Nova Persei	68
PORTER, ROYAL A. The Influence of Atmospheres of Nitrogen and	
Hydrogen on the Arc Spectra of Iron, Zinc, Magnesium, and	
Tin, Compared with the Influence of an Atmosphere of Ammo-	
nia	274
REESE, H. M. A Determination of the Cause of the Discrepancy	
between Measures of Spectrograms made with Violet to Left	
and with Violet to Right	142
REESE, STANLEY C. Review of: Theorie und Geshichte des photo-	,
graphischen Objectivs. Moritz von Rohr	70
RITCHEY, G. W. Later Photographs of the Nebula about Nova Per-	,
sei · · · · · · · · · · · · · · · · · · ·	129
RUNGE, C., AND F. PASCHEN. On the Radiation of Mercury in the	
Magnetic Field	235
Separation of Corresponding Series Lines in the Magnetic Field	333
RUSSELL, HENRY NORRIS. An Improved Method of Calculating	333
the Orbit of a Spectroscopic Binary	252
	2

INDEX TO AUTHORS	365
SCHEINER, J. Remarks on the Article on Spectra Containing both	PAGE
Bright and Dark Lines, by Professor Kayser	342
SMITH, HARRISON W. Photographic Work of the Eclipse Expedi-	
tion from the Massachusetts Institute of Technology	199
VOGEL, H. C. Radial Velocity of the Orion Nebula	302
WELLMANN, VICTOR. On a Numerical Relation Between Light and	
Gravitation · · · · · · · · ·	282
ZEEMAN, P. Some Observations on the Resolving Power of the Mich-	
elson Echelon Spectroscope	218